

## Chapter 3 - Chemical Inventory and Tracking

### 1.0 Introduction

This chapter identifies user safety and health requirements found in Federal regulations and national standards that address the inventory and tracking of **chemicals** (see def.) and **chemical products** (see def.). Direct requirements for an inventory and tracking system are found in 29CFR1910.1200, and 40 CFR 370.25. In addition, there are many regulations and standards for which an inventory and tracking system is an implied requirement, since inventory information facilitates compliance. Therefore, implied requirements are summarized here but are not included as mandatory requirements in this chapter.

### 2.0 Applicability

This document applies to all locations that use or store chemicals or chemical products. It applies to chemicals prior to their becoming waste (See Disposition, Chapter 8, for requirements for chemicals after they become waste.)

*[NOTE: Throughout this document, the term "chemicals" is used to indicate chemicals and/or chemical products.]*

### 3.0 Definitions and Acronyms

**Chemical:** Any element, compound or mixture of elements and/or compounds that a) possesses hazardous properties (including, but not limited to flammability, toxicity, corrosivity, reactivity); b) is included on any federal, state, or local agency regulatory list; or c) is associated with an MSDS. For the purpose of this document this definition also applies to **chemical products** (see def.)

**Chemical Product:** A mixture of any combination of two or more chemicals that may or may not be the result, in whole or in part, of a chemical reaction, and that itself has hazardous properties. Chemical products will have Material Safety Data Sheets (MSDS) associated with them and include materials such as paints, lubricants, cleaning agents, fuels, etc.

**Chemical Inventory:** A listing of chemicals at a site, with their respective quantities, locations, and other relevant data.

**Chemical Tracking:** Monitoring changes to the inventory data for chemicals over time from acquisition to disposition in order to keep the inventory up-to-date

**Hazardous Chemical:** Any chemical that presents a physical hazard or a health hazard.

**MSDS<sup>1</sup>:** Material Safety Data Sheet

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**1** **Material Safety Data Sheets (MSDS):** Although a manufacturer may provide an MSDS for a chemical, the issuance of that MSDS does not necessarily indicate that the material is hazardous. Some manufacturers develop MSDSs for all their chemicals whether the material is hazardous or not.

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## 4.0 Requirements

*[NOTE: The information that follows is a consolidation of existing Federal safety and health requirements and national standards that relate to inventorying and tracking of chemicals. It therefore contains "shall" statements that are taken from, or based on "shall" statements in those existing requirements. While requirements from national standards that are referenced here are not, in and of themselves, mandatory, they are made mandatory by DOE and Federal requirements, including OSHA regulation 29CFR1910.6 which incorporates them by reference. DOE Order 440.1A mandates compliance with OSHA regulations found in Title 29 of the Code of Federal Regulations (CFR). National standard requirements referenced here are thereby made mandatory for DOE contractors through contracts that include DOE Order 440.1A. Please see the Introduction to this section of the Chemical Management Handbook for more information.]*

### 4.1 Chemical Inventory Requirements

#### **29 CFR 1910.1200(e)(1) Hazard Communication**

**4.1.1** Maintain a list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas).

#### **40 CFR 370.25(a-d) Hazardous Chemicals Reporting: Community "Right-To-Know"**

**4.1.2** The owner or operator of a facility shall annually submit an inventory form (Tier I or equivalent State or local form) containing information on specified hazardous chemicals present at the facility during the preceding calendar year above specified threshold levels to the state emergency response commission, the local emergency planning committee, or the fire department with jurisdiction over the facility. For any specific hazardous chemical at the facility, the owner or operator may submit a Tier II form (40 CFR 371.41) in lieu of the Tier I information.

### 5.0 Implied Chemical Inventory Requirements

There are many mandatory standards that do not directly require an inventory of hazardous chemicals, but for which use of a chemical inventory and tracking system would be necessary for, or would facilitate compliance. A list of major standards with implied requirements for keeping a chemical inventory and/or for tracking chemicals follows. The applicability of specific DOE Orders will depend on each site's individual contract.

#### **29 CFR 1910.38**

**5.1 Employee Emergency Plans and Fire Prevention Plans.** Maintain a list of the major workplace fire hazards and their proper handling and storage procedures; potential ignition sources and their control procedures; and the type of fire protection equipment or systems that can control a fire involving the identified hazards.

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| 29 CFR 1910.1450  | <b>5.2 Occupational Exposure to Hazardous Chemicals in Laboratories.</b> Requires employee protection for work in laboratory environments with particularly hazardous substances, including carcinogens, reproductive toxins, and substances with a high acute toxicity. Requires an approved Chemical Hygiene Plan covering the tasks, hazards, and controls before beginning the work. Upon assignment, employees must be provided with information and training to ensure that they are apprised of the hazards of chemicals in their work areas. This information and training must be provided to employees prior to the start of any work in the area, including the start-up of any new operation or task. |
| 29 CFR 1910. 20   | <b>5.3 Access to Employee Exposure and Medical Records</b> Authorizes employee access to MSDSs or to a chemical inventory or any other record that may reveal the identity of toxic substances or harmful physical agents and where and when they were used in order to give employees some idea of their potential chemical exposures.   |
| DOE O 151.1A      | <b>5.4 Comprehensive Emergency Management System</b> Uses a hazards assessment to develop an emergency management program that protects workers, the public, and the environment. Additions or deletions of chemical hazards, or changes in the magnitude of a chemical hazard from an up-to-date chemical inventory can be used in development and maintenance of the emergency management hazards assessment. During an emergency response, a real-time chemical inventory can provide the basis for consequence assessments used for protective action determinations.   |
| DOE O 440.1A      | <b>5.5 Worker Protection Management for DOE Federal and Contractor Employees</b> Mandates an Industrial Hygiene Program with surveys of all work areas and operations to identify and evaluate potential health hazards through appropriate workplace monitoring. A chemical inventory can help to identify locations where chemical health hazards may be present. Managers must ensure that applicable explosives operations comply with DOE M 440.1-1. Requires compliance with OSHA regulations (29 CFR 1910 and 29 CFR 1926).  |
| 29 CFR 1910.119   | <b>5.6 Process Safety Management of Highly Hazardous Chemicals (PSM)</b> Establishes requirements to protect workers by preventing or minimizing the consequences of 1) catastrophic releases of toxic, reactive, or flammable chemicals used in quantities at or above specified thresholds or 2) ignition of explosives in manufacturing processes. Chemical tracking is needed to determine where threshold quantities are exceeded. PSM also requires an employer to keep process safety information on the chemicals used and specify the maximum intended inventory of any listed chemical.   |
| DOE O 420.1 Chg 3 | <b>5.7 Facility Safety</b> All new construction shall, as a minimum, conform to the Model Building Codes applicable for the state or region,  |

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supplemented with additional safety requirements associated with the facility hazards. Inventories of chemicals must be tracked in order to ensure that chemical limits specified in applicable regulations are not exceeded.

**Uniform Building Code/  
Uniform Fire Code**

**5.8 Model Building Codes** Establish requirements for the prevention, control and mitigation of dangerous conditions created by hazardous materials and for providing information needed by emergency response personnel. Permits are required to store, dispense, use or handle quantities of hazardous materials exceeding listed permit amounts. The authority having jurisdiction may require that a Hazardous Materials Management Plan and/or Hazardous Materials Inventory Statement accompany the permit. In addition, inventories of chemicals must be tracked in order to determine whether or not listed permit quantities of chemicals have been exceeded.

**The DEAR Clause**

**5.9 Department of Energy Acquisition Regulation (DEAR) 970.5204-2, "Integration of Environment, Safety and Health into Work Planning and Execution"** The contractor shall comply with, and assist the Department of Energy in complying with ES&H requirements of all applicable laws and regulations, and applicable directives identified in the clause of this contract on Laws, regulations, and DOE Directives. The contractor shall cooperate with Federal and non-Federal agencies having jurisdiction over ES&H matters under his/her contract. Before work is performed, the associated hazards are evaluated and an agreed-upon set of ES&H standards and requirements are established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences. Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and its associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures. [See also **Safety Management System Policy (DOE P 450.4)** and **Integrated Safety Management System Guide (DOE G 450.4-1B)**.]

**10 CFR 830**

**5.10 Nuclear Safety Management** The documented safety analysis requires a systematic identification of all natural and man-made hazards associated with the facility. Some DOE contracts may still contain the earlier, more general safety analysis Order, **Nuclear Safety Analysis Reports (DOE Order 5480.23)**, or its predecessor, **Safety Analysis and Review System (DOE Order 5481.1B)** for non-nuclear facilities.

**40 CFR Part 68**

**5.11 Chemical Accident Prevention Provisions** Requires offsite consequence analysis and development and implementation of a Risk Management Plan to protect the public and the environment by preventing or minimizing the consequences of catastrophic releases of toxic, reactive, or flammable chemicals used in quantities at or

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above specified thresholds. Inventories of chemicals must be tracked in order to ensure that specified chemical limits are not exceeded.

### 40 CFR Part 355

**5.12 Emergency Planning and Notification** Establishes the list of extremely hazardous substances, threshold planning quantities, and facility notification responsibilities necessary for development of state and local emergency response plans.

### 40 CFR Parts 61 and 63

**5.13 National Emission Standards for Hazardous Air Pollutants (NESHAPs)** Standards are provided for specific types of sources and processes involving hazardous air pollutants (including radionuclides). Requires registration of emission sources and quantity of air contaminant emissions. Contains standards for specific processes involving hazardous chemicals. A chemical inventory is needed to identify and track locations and quantities of chemicals that may be released as hazardous air pollutants.

### 40 CFR 82

**5.14 Protection of Stratospheric Ozone** A system to track the acquisition and inventory of ozone depleting substances can be used to accomplish the required annual certification that each ozone depleting substance is being used only for laboratory applications and is not being resold or used in manufacturing.

## Appendix A

### Source Documents

29 CFR 1910.1200, "Hazard Communication"

40 CFR 370, "Hazardous Chemical Reporting: Community Right-To-Know"

29 CFR 1910.38, "Employee Emergency Plans and Fire Prevention Plans"

29 CFR 1910.1450, "Occupational Exposure to Hazardous Chemicals in Laboratories"

29 CFR 1910. 20, "Access to Employee Exposure and Medical Records"

DOE O 151.1A, *Comprehensive Emergency Management System*

DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*

29 CFR 1910.119, "Process Safety Management of Highly Hazardous Chemicals"

DOE O 420.1 Chg 3, *Facility Safety*

Uniform Building Code/ Uniform Fire Code

Department of Energy Acquisition Regulation (DEAR) 970.5204-2, "Integration of Environment, Safety and Health into Work Planning and Execution"

10 CFR 830, *Nuclear Safety Management*

40 CFR Part 68, "Chemical Accident Prevention Provisions"

40 CFR Part 355, "Emergency Planning and Notification"

40 CFR Part 61 and 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs)

40 CFR 82, "Protection of Stratospheric Ozone"